

**TO:** Stephanie Vaughn,  
Michael Hoppe

**CC:** Rob Law, Bill Potter, John Rolfe (*de maximis*),  
Gary Foster, George Hicks (CH2M Hill)

**FROM:** Stan Kaczmarek

**DATE:** September 30, 2013

**RE:** Proposed Dredging Modifications in Cut 10

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This memo is in response to EPA requests for clarification provided in Stephanie Vaughn's September 27, 2013 email

EPA Comments and CPG's response

**1. *We have an approved design based on known conditions. What has changed?***

- a. The dredging design includes 0.5 acres that was voluntarily added by the CPG (*de maximis*' August 1, 2012 letter) to the original Removal Area defined in the June 18, 2012 AOC. This additional area (i.e. all areas north of Station 31+00) was based on sediment sampling results that showed how deep a 2 inch diameter core could penetrate before it encountered what was described as native material. A further review of those results documents that it took many attempts to collect those samples (see Figure 1 where each black line represents a coring attempt involved in the collection of each sediment sample). Moreover, some of the sediment samples were collected in the middle of a rock-stabilized slope (see Figures 2 and 3 which show from both a plan view and a cross-section view where the cores were collected). While interpreted as fine sediment on top of native material, it turns out to be a heterogeneous surface with sediment in between rocks and rip-rap. This was confirmed by the dredging contractor who poled the additional area confirming the existence of large rock on the steep slope of the right bank; this condition makes execution of the approved dredging design difficult if not infeasible.
- b. SSP sample location 12-0481 is actually located in the navigation channel (see Figure 2).

**2. *The width of the removal area is greater than 50' from Station 29+50 to Station 32+00, so at least some removal should be achievable in this area. After that, the width starts to trail off – but again, some removal should be achievable.***

- a. Dredging may be possible and will be attempted between Station 29+50 and Station 32+00 (which is beyond the area covered by the AOC). However, north of Station 32+00 the Removal Area narrows and the slope of bank increases to greater than 3:1, which is why the design indicated that this area could not be capped. The steep slope is the reason armor rock has been placed along this portion of the shore... to prevent potential erosion of the bank. This rock armor has been determined to extend to the toe of the slope, and the slope itself often extends to the boundary of the Navigational Channel.
- b. If there are areas where "dredgeable" sediment is present north of Station 32+00, CPG will attempt to dredge it provided that dredging will not remove the rock armor and destabilize the slope. However prior to that, CPG requests that EPA and/or CDM accompany the CPG's contractors on Monday afternoon to witness additional poling in those areas which, when combined with poling results obtained by GLDD on September 10 (see Attachment 1 which provides detailed findings from GLDD's previous poling in Cut 10), can form the basis for selecting the segments of Cut 10 where dredging could be attempted (see next section of this report for recommended poling and data interpretation procedures).

3. **Coring 0365 went down 3.5', then 0366 went down 2.5', and 0368, 0369, and 0481 went down only 1.5' before hitting refusal – this should help guide expectations.**
  - a. As discussed in Item 1 above and depicted in Figure 1, many attempts were made before the above cores could even be advanced. The poling proposed for Monday afternoon should be able to demonstrate what can be dredged and what cannot be dredged.
4. **I do not understand the “test dredging” concept – either the sediment is removed or it's not. The entire removal area should be dredged, as possible.**
  - a. Dredging will be attempted in all areas where poling indicates that there is “dredgeable” sediment, and can be attempted in other areas where EPA specifies it should be tried as long as the rocks stabilizing that slope are not disturbed. The CPG and its contractors recommend not dredging over the armoring rock or within 10 feet of the toe of the slope.

#### Recommendations for Poling on Monday

- Proposal on how to interpret the results
  - Based on bucket size, a 6 foot wide swatch is the minimum requirement that will allow a bucket to be able to cut into that sediment without rocks preventing closure of the bucket
  - Armor rock should not be removed near the shoreline
  - No dredging should occur in Navigation Channel
- Methodology
  - Conduct additional confirmatory poling using a 15 or 20 foot pole (needed because of water depth in this area) with CDM/EPA participation Monday afternoon
  - Utilize CH2M-Hill or OSI support boat
  - CH2M-Hill or OSI staff will handle the pole and record the data
  - Pole every 5 – 10 feet down the center of Cut 10 (only the edges of Cut 10 were poled before)
  - If time allows, also pole along Navigation Channel line boundary of the removal area to fill in data (GLDD did poling every 10 feet)
- Results and Recommendations
  - Define, based on a combination of this additional data and the recent GLDD poling data, the areas where an attempt at dredging should be made
  - If results show that there is adequate width in between rocks for a bucket to remove fine sediment, then an attempt should be made to do that
  - No dredging should occur that could destabilize the slope by removing the existing armor stone or taking out material that is stabilizing this stone, should be avoided



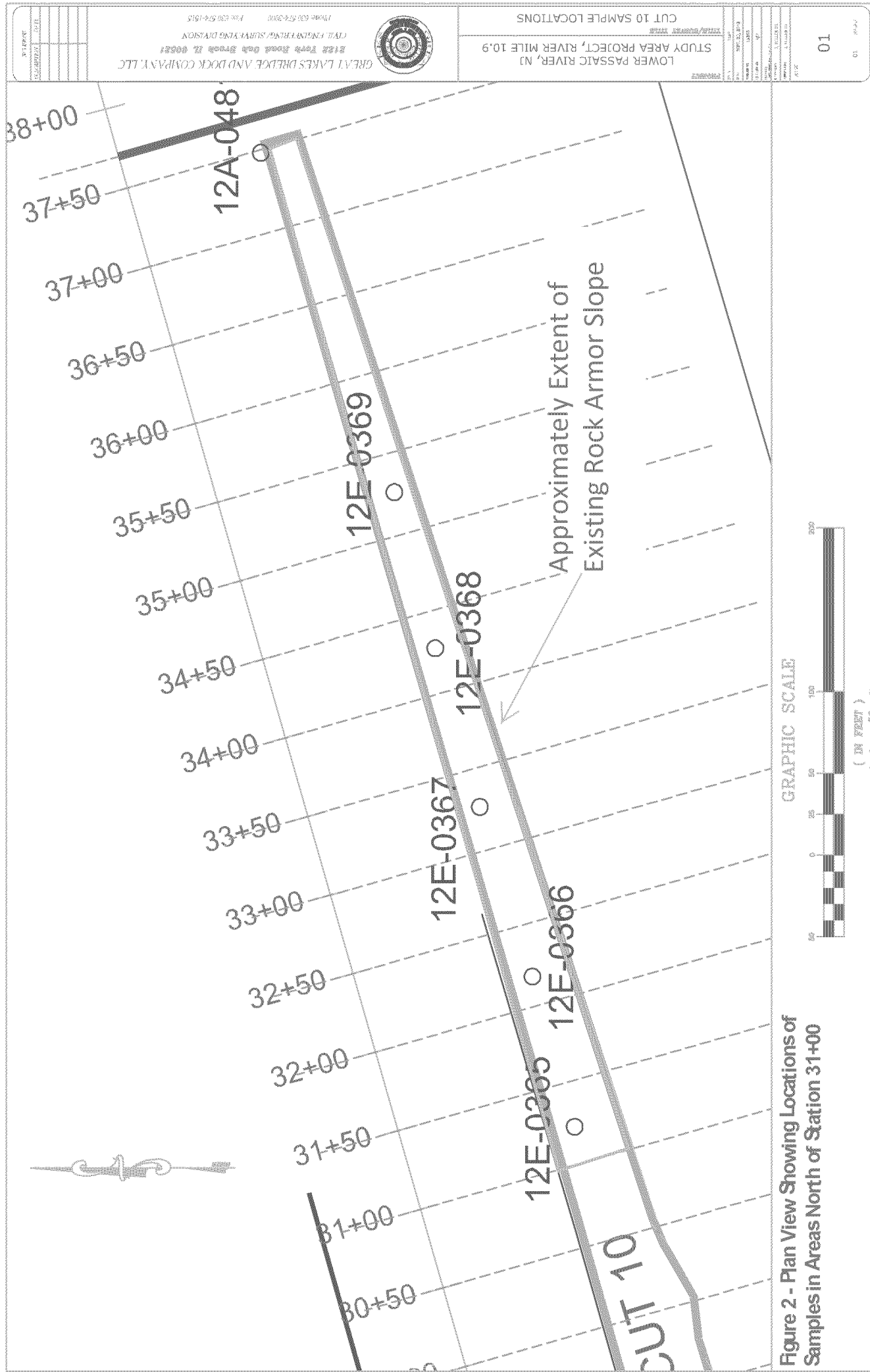
# RM 10.9 Characterization Addendum

FIGURE 1 - Coring attempts during collection of sediment samples in the RM 10.9 Removal Area (each black line indicates a coring attempt)

0 50 100 200 300 Feet

**AECOM**

April, 2012



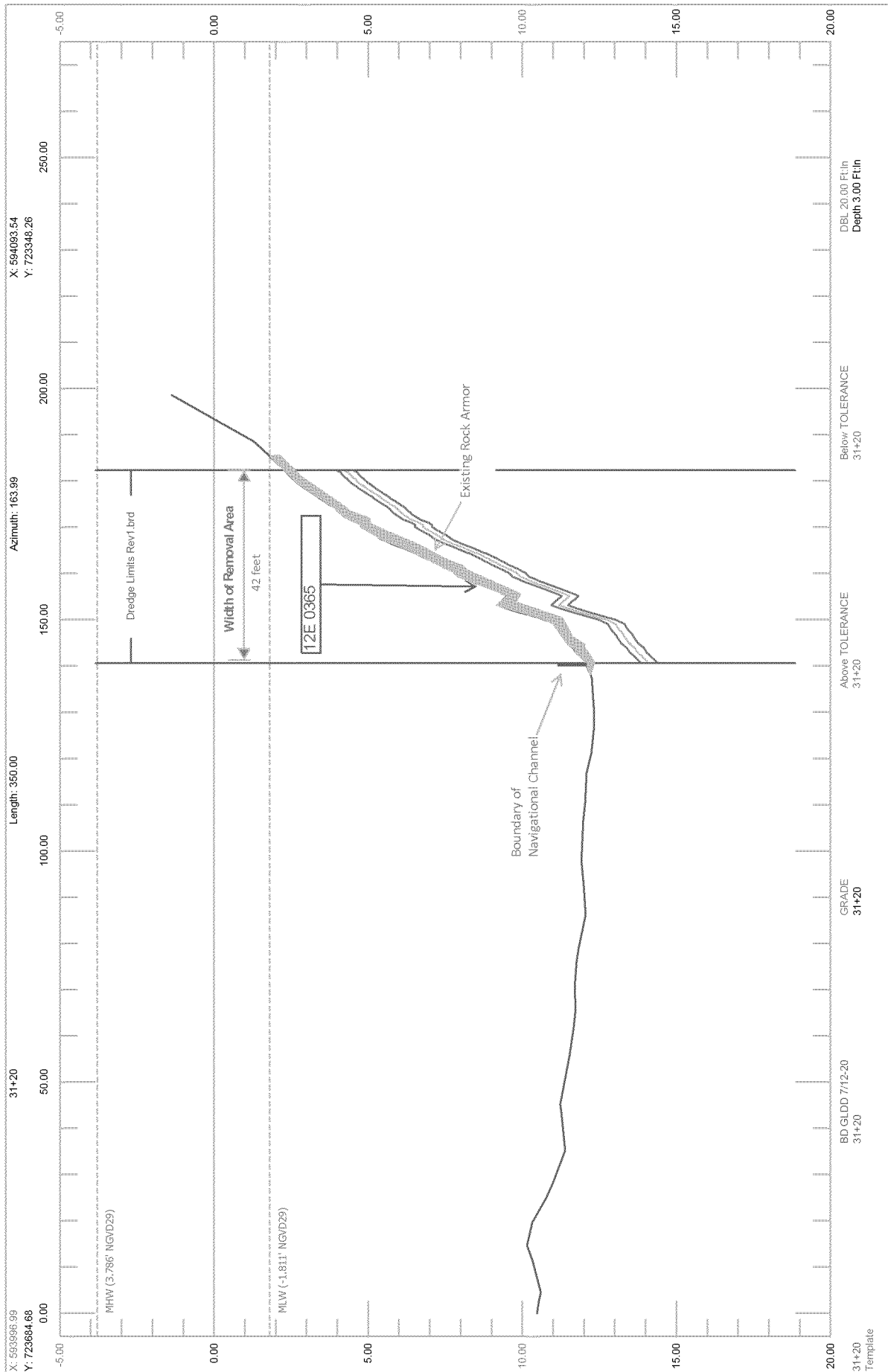


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (1 of 6)

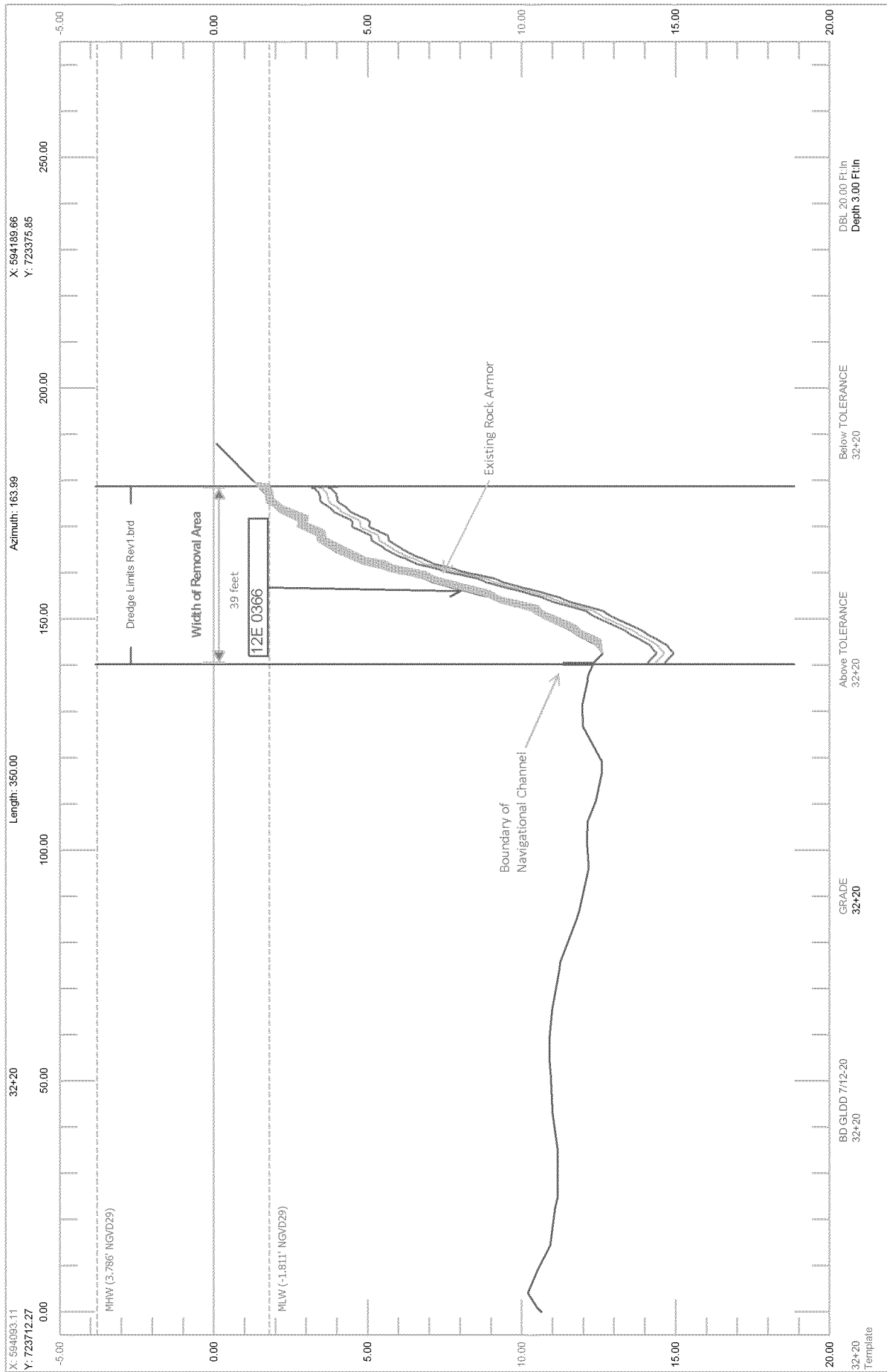


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (2 of 6)

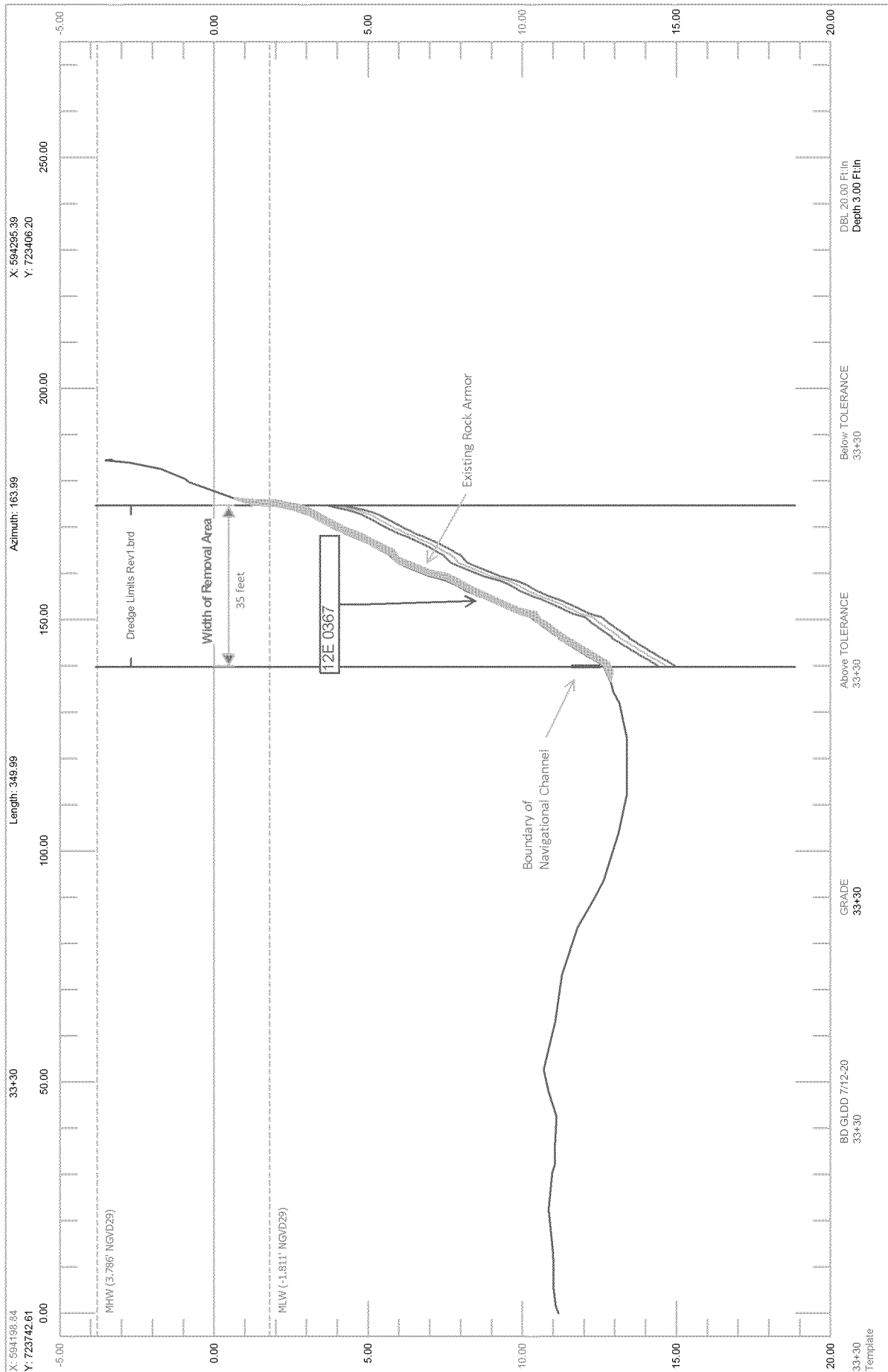


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (3 of 6)

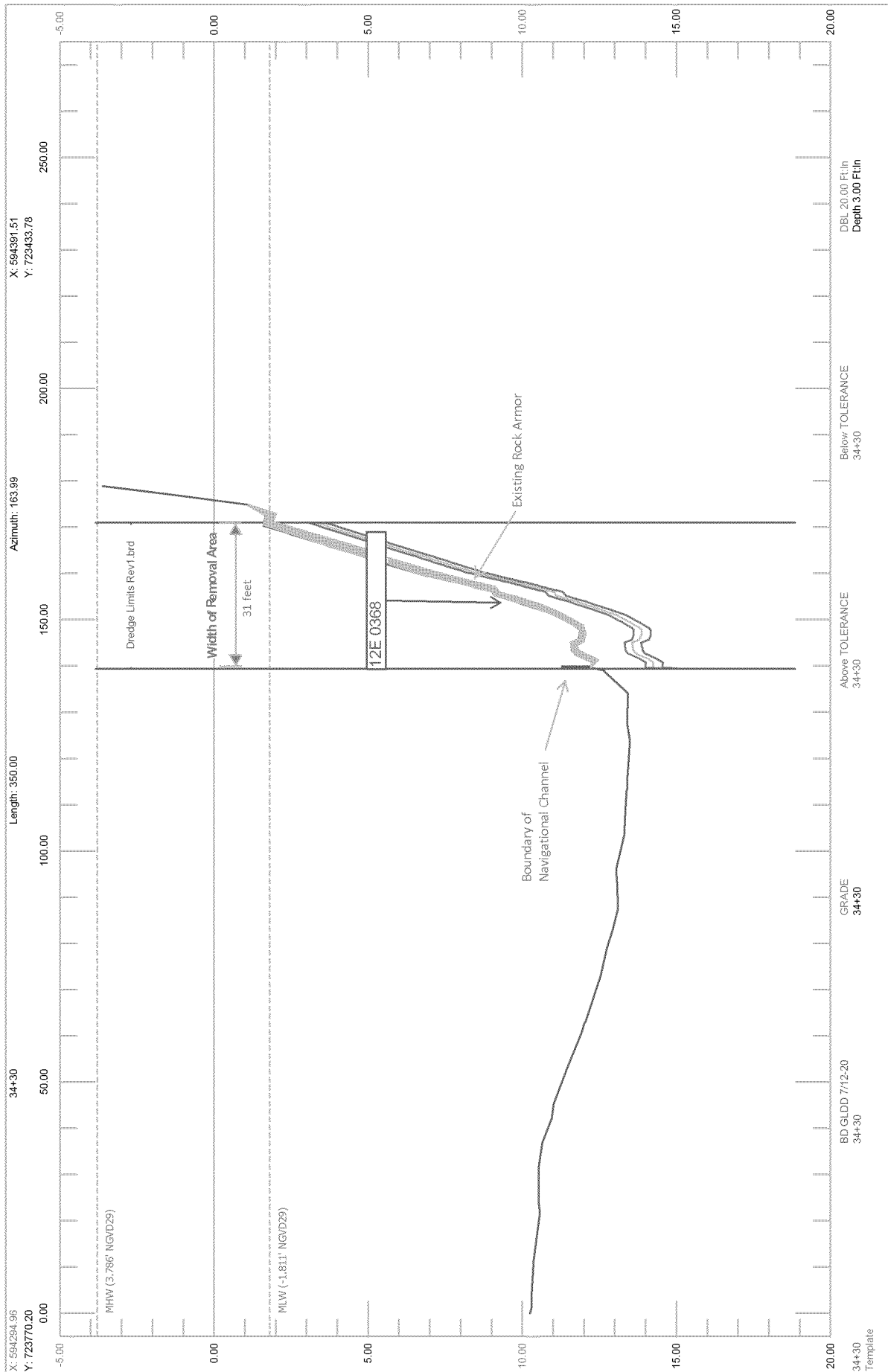


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (4 of 6)

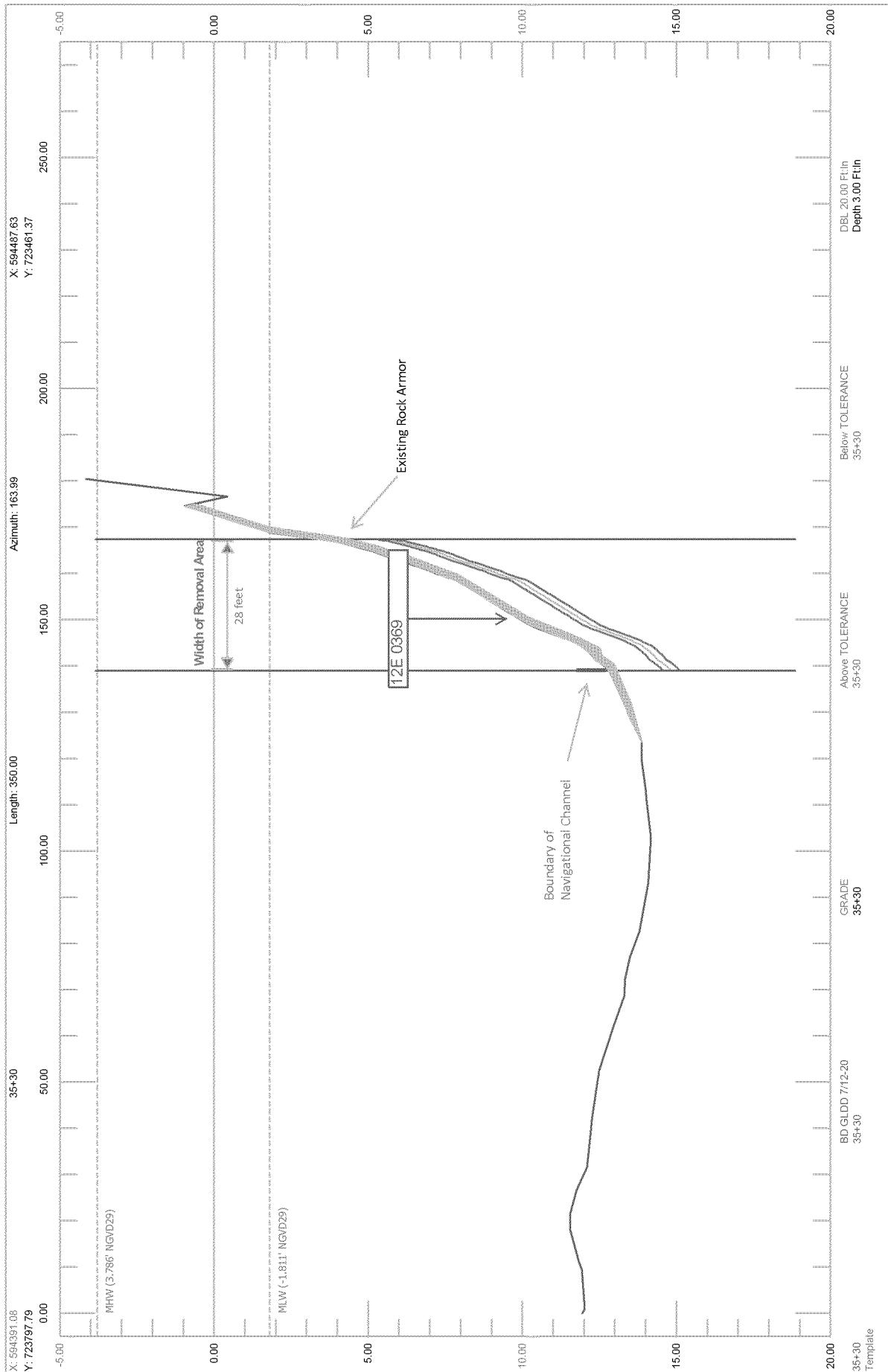


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (5 of 6)

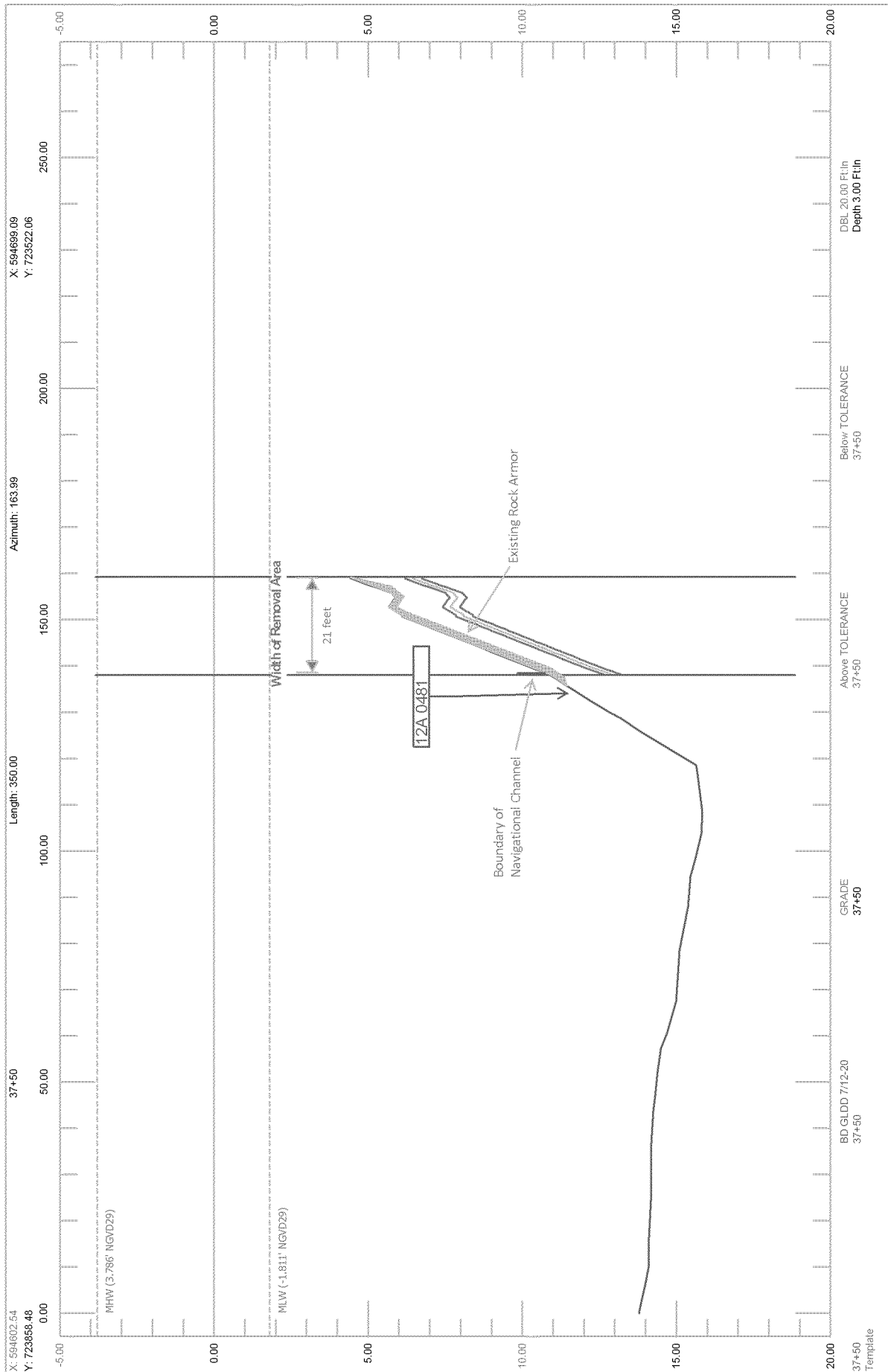


Figure 3 - Cross Sections Showing Location of Sediment Samples in Areas North of Station 31+00 (6 of 6)

Attachment 1

Details from GLDD Poling Performed September 10 from Station 29+50 to Station 37+60

## Passaic River Rock Probing

Eng: J. Miller III  
M. Patria

Date: 10<sup>th</sup> Sep

Conditions:

Sky: Overcast  
Seas: 0  
Wind: Light and variable  
Temp: 70-75°F  
Tide: Flood

Tasks: Probe northern end of Passaic River project for hard bottom that may make the area undredgable

Notes: Probing collected along shoreline edge and riverside edge of cut  
Probing as close to channel boundary as water depth would allow

Sta	Range	Notes	Range	Notes
37+60	Channel side	Rocks	Riverbank	Boulder
37+50		Layer of mud/silt then rocks		Rocks
37+40		Boulder		Rocks
37+30		Gravel and rocks		Boulder
37+20		Rocks		Layer of mud, boulders
37+10		Layer of mud/silt then boulder		Rocks
37+00		Rocks		Boulder
36+90		Boulder		Boulder
36+80		Rocks		Layer of mud, boulders
36+70		Layer of mud/silt then rocks		Mud
36+60		Rocks		Rocks
36+50		Rocks		Boulder
36+40		Layer of mud/silt then rocks		Boulder
36+30		Gravel		Rocks
36+20		Rocks		Layer of mud, boulders
36+10		Layer of mud/silt then rocks		Layer of mud, rocks
36+00		Boulder		Layer of mud, rocks
35+90		Gravel and rocks		Rocks
35+80		Gravel		Boulder
35+70		Rocks		Rocks
35+60		Rocks		Rocks
35+50		Layer of sand then rocks		Boulder
35+40		Gravel/Sand		Boulder
35+30		Rocks		Rocks
35+20		Sand/Rocks		Layer of mud, rocks

35+10	Mud/Silt	Rocks
35+00	Rocks	Rocks
34+90	Layer of sand then rocks	Rocks
34+80	Layer of sand then gravel	Gravel/Rocks
34+70	Layer of sand then rocks	Boulder
34+60	Rocks	Boulder
34+50	Rocks	Layer of mud, rocks
34+40	Boulder	Boulder
34+30	Mud/Silt	Rocks
34+20	Layer of mud/silt then rocks	Layer of mud, rocks
34+10	Rocks	Layer of mud, rocks
34+00	Rocks	Rocks
33+90	Rocks	Mud
33+80	Layer of mud/silt then rocks	Layer of mud, rocks
33+70	Rocks	Rocks
33+60	Rocks	Rocks
33+50	Layer of sand then rocks	Boulder
33+40	Layer of sand then hard bottom	Boulder
33+30	Rocks	Layer of mud, rocks
33+20	Layer of sand then rocks	Sand, rocks
33+10	Layer of sand then rocks	Rocks
33+00	Layer of sand then rocks	Layer of mud, boulders
32+90	Layer of mud then rocks	Layer of sand/rocks
32+80	Rocks	Boulder
32+70	Layer of sand then rocks	Boulder
32+60	Layer of sand then rocks	Rocks
32+50	Rocks	Rocks
32+40	Mud	Mud
32+30	Boulder	Boulder
32+20	Rocks	Layer of mud/silt rocks
32+10	Layer of sand then rocks	Boulder
32+00	Rocks	Rocs
31+90	Boulder	Boulder
31+80	Layer of mud/silt then rock	Rocks
31+70	Rocks	Rocks
31+60	Layer of mud/silt then rock	Layer of mud/silt rocks
31+50	Layer of mud/silt then rock	Layer of sand, rocks
31+40	Mud and gravel	Layer of sand, rocks
31+30	Mud and gravel	Layer of sand, rocks
31+20	Gravel	Rocks
31+10	Gravel	Sand and gravel
31+00	Mud	Rocks
30+90	Layer of mud then rock	Layer of mud, rocks
30+80	Layer of mud, rocks	Layer of mud, rocks
30+70	Mud	Layer of mud, rocks
30+60	Gravel	Sand and gravel
30+50	Rocks	Sand and gravel

30+40	Mud and gravel	Rocks
30+30	Gravel	Mud
30+20	Mud and gravel	Rocks
30+10	Mud and gravel	Boulder
30+00	Rocks	Sand and gravel
29+90	Gravel	Rocks
29+80	Layer of mud/silt then rock	Boulders
29+70	(3'5") of sand then rock	Rocks
29+60	Layer of mud/silt then rock	Mud and rocks
29+50	Mud/gravel	Mud/rocks